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ABSTRACT

Four basic approaches to the manual organization of information which concentrate on information storage and subject retrieval are described. Uniterm and Optical Coincidence are indexing systems, Keysort is an indexing tool as well as a storage and retrieval method, and Filing is used in conjunction with the above systems to store and retrieve information. The guide is designed for the person who has information to organize and no idea of how to go about it. Each section gives a general overview of one system and describes what is needed to implement it. Limitations, advantages, and disadvantages of each system are discussed together with variations to make them cheaper, easier, or more efficient. Examples of the Uniterm, Optical Coincidence and Keysort systems are included. (Author/KP)

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MANUAL SYSTEMS OF INFORMATION STORAGE AND RETRIEVAL

or

Organizing on the Cheap and Easy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Lynn Cooper

Sally Taber

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

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March, 1978

IR005 783

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Introduction

We live in the midst of a computer age, yet many of us cannot afford computer services or do not with to become involved with computers. The literature on information storage and retrieval is dominated by articles and books on automation, yet those of us without access to computers also have information to store and retrieve.

As Community Information Specialists, our efforts at organization will likely be directed toward small, specialized collections which do not require automation. Therefore, we set out to learn about manual systems of information storage and retrieval, and particulary systems which are cheap and easy. We found four basic approaches to organization of information:

Uniterm, which is basically an indexing system;

Optical Coincidence, which is also an indexing system;

Keysort, which may be used as an indexing tool or may itself be the storage and retrieval method;

Filing, which is used in conjunction with all other systems mentioned above to store and retrieve information.

Our project is aimed toward the "non-organizational" mind--that is, a person who, faced with a pile of information, has no idea how to put it in order. Each of the sections deals with one of the systems. The first part gives a general idea of the system and describes what is needed to set up the system. Examples of uniterm, optical coincidence, and keysort are included and should be used along with the instructions for input and retrieval to help make the instructions clear. The limitations, advantages and disadvantages of each system are discussed along with variations which will make it cheaper, easier, or more efficient.

UNITERM

In a uniterm system, cards are made for each subject heading and the number of the item is listed on each card that is appropriate. Heavy paper or index cards can be used. If many cards are needed for your collection, the cards can be run through a mimeograph machine rather than rule off each card by hand.

Input

Each document added to the collection is assigned an accession number. The terms under which the document should be indexed are decided upon and noted. The cards for these descriptors are then pulled and the document number is written on each card in the column which is indicated by the last digit of the accession number, for example:

> Items 10, 290, 1110, and 3400 would all be listed under the column headed by "0";
>
> Items 15, 555, 2325, and 5555 all go under "5".

The cards are returned to their own file in alphabetical order and the document is filed with the rest of the collection in numerical order.

Retrieval

Note the main terms in the subject to be researched and pull the cards with these descriptors. For example, for information on pesticides used on tomatoes, pull the cards for Pesticides and Tomatoes. Compare the numbers written under each column and note the numbers which appear on both cards. In the sample cards (Set 1, page 4) the appropriate numbers are:

> 10, 331, 92, 14, 354, 135, 326, 207, 249

The documents indicated by these numbers will have information on pesticides used on tomatoes.

PESTICIDES (CARD 2)									
0	1	2	3	4	5	6	7	8	9
10	21	92	33	14	135	146	147	88	19
50	61	242	113	104		216	187	138	99
160	181	272	293	224		326	207	208	249
290	261	312	303	354		466	387		319
310	271		463	364		466	367		429
360	311			484			427		479
	391						457		499
	421								

FIGURE 1: UNITERM, SET 1

TOMATOES (CARD 2)									
0	1	2	3	4	5	6	7	8	9
10	11	92	83	14	125	76	17	118	39
150	51	112	223	74	135	326	207		249
300	311	232	323	134	216	336			329
320		392		354	345	496			
330		452			365				
410									

OHIO (CARD 3)									
0	1	2	3	4	5	6	7	8	9
40	31	232	123	14	56	56	87	228	79
70	111		263	94	86	66	417	238	289
160	141		273		135	136		418	319
300	311		493		225	296			469
360					485				
420									

If you wish to further narrow the subject to pesticides used on tomatoes in Ohio, pull the card on Ohio and note the numbers which appear on all three cards. In the sample cards, the appropriate numbers are:

311, 14, 135.

Limitations

The size of the collection which can be indexed by uniterm varies. Jahoda states that uniterm has been used for up to 25,000 or more items (Jahoda, Information Storage and Retrieval Systems for Individual Researchers, page 55); however, Doudnikoff suggests that collections larger than 10,000 items become difficult to handle (Doudnikoff, Information Retrieval, page 10).

Advantages

1. Uniterm is quite inexpensive and easy to set up.
2. Once the descriptors have been decided upon, input is simple and rapid.
3. New terms can be easily added by making up a new card. For example, authors' names, geographical locations, or the form of the information (book, film, kit, etc.) can be added simply by making up a new card.
4. Conversion to computer is simple.
5. One document may be indexed under as many terms as needed. It is this advantage which appeals to many scientists and engineers who need a way to index a document under each scientific or technical term.
6. The search method may appear at first to be awkward, but it is easily learned and becomes fairly rapid with a little practice. Doudnikoff states that a 5000 item file can be searched by 3 or 4 terms in about 2 minutes. (Doudnikoff, page 10)
7. Deletion requires only that the number be crossed out on each card.

Disadvantages

1. Documents are filed by accession number and are in no subject order, which may appear to be a disadvantage to some people.
2. Comparing many subject heading cards (over 4 or 5) can become awkward.
3. In a strictly "uni"-term system, the search may include a number of cards. For example, a document on cold air ducts would be listed under the descriptors "cold", "air", and "ducts". A method of avoiding this is described under the Variations section.
4. False combinations may turn up. For example, the pesticides and Ohio cards could indicated information on both pesticides used in Ohio and pesticides manufactured in Ohio, which may not be the same thing.

Variations

Jahoda suggest color-coding as a way to give some more information about the item besides its accession number. (Jahoda, page 52) For example, books may be noted on the card in blue ink, pamphlets in red, films in green. The color could also be used to indicate the date of publication, geographical area with which the item is concerned, or other relevant information.

The same effect may be achieved by assigning a letter prefix, for example:

A-13, A-225, and A-394 could all indicate films (A),; or

N-36 (Northwest area), M-342 (Midwest area), F-678 (outside of the United States).

The color coding and prefix can be combined, as in the sample cards (Set 2, p. 7-8) to give a good deal of information about an item. In the sample cards we can find:

FIGURE 2: UNITERM, SET 2

(COLORS ARE INDICATED IN PARENTHESIS HERE, BUT WOULD SIMPLY BE SHOWN BY USING DIFFERENT COLORS OF INK IN A SYSTEM ACTUALLY IN USE.)

CODE: (CARD 1)

A = TOLEDO ONLY
B = LUCAS COUNTY
C = OHIO
D = U.S.
E = CANADA
F = OUTSIDE OF U.S. & CANADA

= BOOK (BLACK)
= PAMPHLET (BLUE)
= FILM (RED)
= SLIDE/TAPE (GREEN)

FIGURE 2: UNITERM, SET 2

ALCOHOLISM (CARD 2)									
0	1	2	3	4	5	6	7	8	9
A-30 (G)	D-81 (BLU)	72 (BLA) 92 (BLA)		B-64 (BLU) D-204 (R) C-214 (BLA) 254 (BLU)		66 (BLA) 186 (R)	F-67 (G) B-97 (BLU)		169 (BLA)

TREATMENT CENTERS (CARD 3)									
0	1	2	3	4	5	6	7	8	9
20 (BLA) A-30 (G)		92 (BLA)		94 (BLA) 114 (BLU) D-204 (R) C-214 (BLA)		186 (R)	B-97 (BLU)	B-38 (G)	

A slide-tape presentation about alcoholism treatment centers in Toledo (A-30);

A film about alcoholism treatment centers in the U.S. (D-204);

Several books about alcoholism (72, 92, 66, 169);

A pamphlet about alcoholism in the U.S. (D-81).

In order to avoid having to search several cards for each phrase, a system which is not strictly uniterm can be set up. For example, instead of indexing cold air ducts under each of the three terms, you might have one card headed "cold air ducts" and thus save two steps in the search. The phrase "treatment centers" in the second set of sample cards is another example. This method has been called "classiterm," since it is a classification approach to a uniterm syst (Krull, Readings in Information Retrieval, page 229)

A "but-not" search can be conducted on uniterm cards. For information on pesticides used on tomatoes but not in Ohio, first compare the pesticides and tomatoes cards and note the numbers which coincide. Then note the numbers which also appear on the Ohio card and disregard the documents represented by these numbers.

OPTICAL COINCIDENCE, or PEEK-A-BOO

Like uniterm, the peek-a-boo system is made up of subject cards under which the number of each item concerned with that subject is indicated. These sample cards were made by ruling off 1/4 inch squares on file folders cut in half, taking care that the position of the grid on each card matched exactly. This process was very time consuming, but a reasonable alternative would be to cut a stencil of the grid and run it on card stock, making sure the grid is in exactly the same position on each card. The holes on these cards were cut with a single-edge razor; however, a hole-punch would be easier and safer to use. A hole-punch which can reach into the middle of a card can be specially ordered from an office supply store.

You can purchase systems which use special plastic cards with a very fine grid and very precise hole-punching equipment. For information, check the Yellow Pages under "Filing Equipment, Systems and Supplies."

Input

In the sample system, each item added to the collection is assigned a number/letter combination unique to it. The subject headings appropriate to the document are decided upon and noted. The cards for these subject headings are pulled and the square representing that document on each card is marked and punched. The subject heading cards are returned to their own alphabetical file and the item is filed according to its own number/letter combination.

Retrieval

When information on a subject is needed, pull the cards on that subject. For example, if the subject is alcoholism treatment centers, pull the subject cards for "alcoholism" and "treatment centers." Line these cards up against

a contrasting background. (In a commercial system, this background will be a light table.) Where the holes align and the background shows through, the documents indicated will have information on both alcoholism and treatment centers. Write down the notations of the documents and pull them.

For example, in the sample cards (Set 3, pages 12-14) we see that documents which have information on alcoholism treatment centers are represented by the notations:

3/K	21/P	37/C
3/Q	36/M	
12/I	36/V	

The documents which have information on drug abuse treatment centers are:

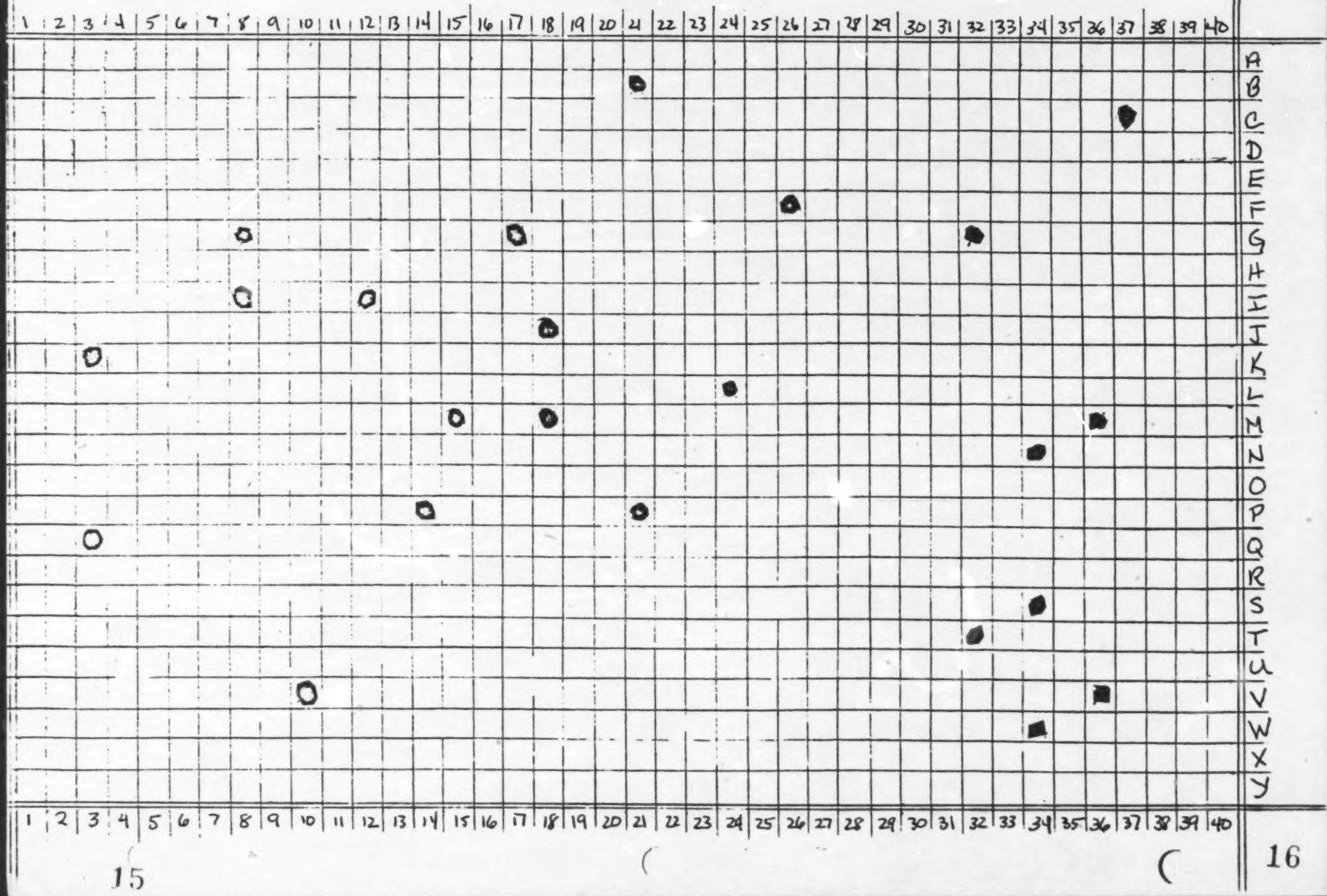
3/D	16/M	36/M
3/K	20/E	37/C
12/I	21/P	

By combining all three cards we can find the documents with information on both alcoholism and drug abuse treatment centers:

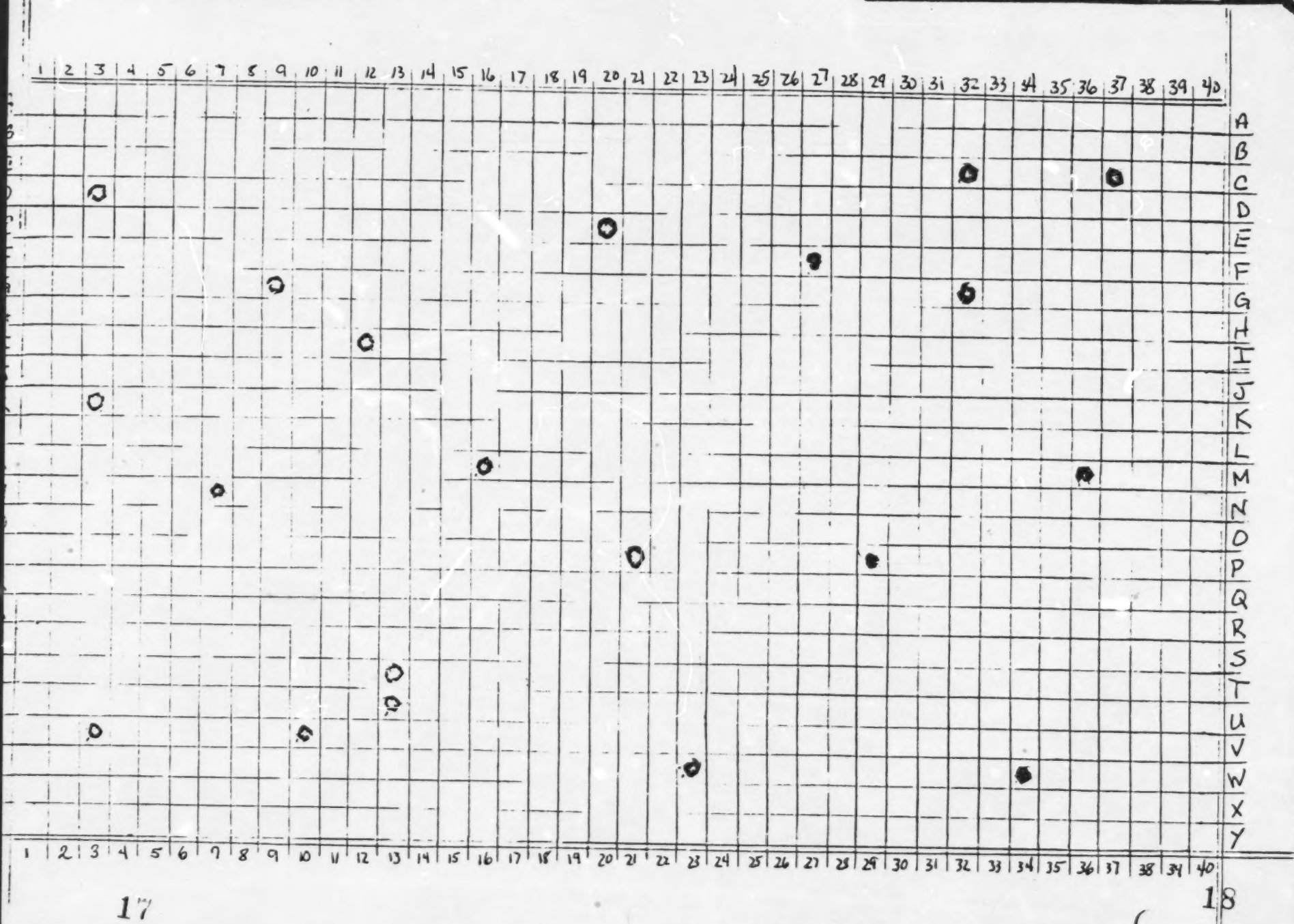
3/K	21/P	37/C
12/I	36/M	

Set 3

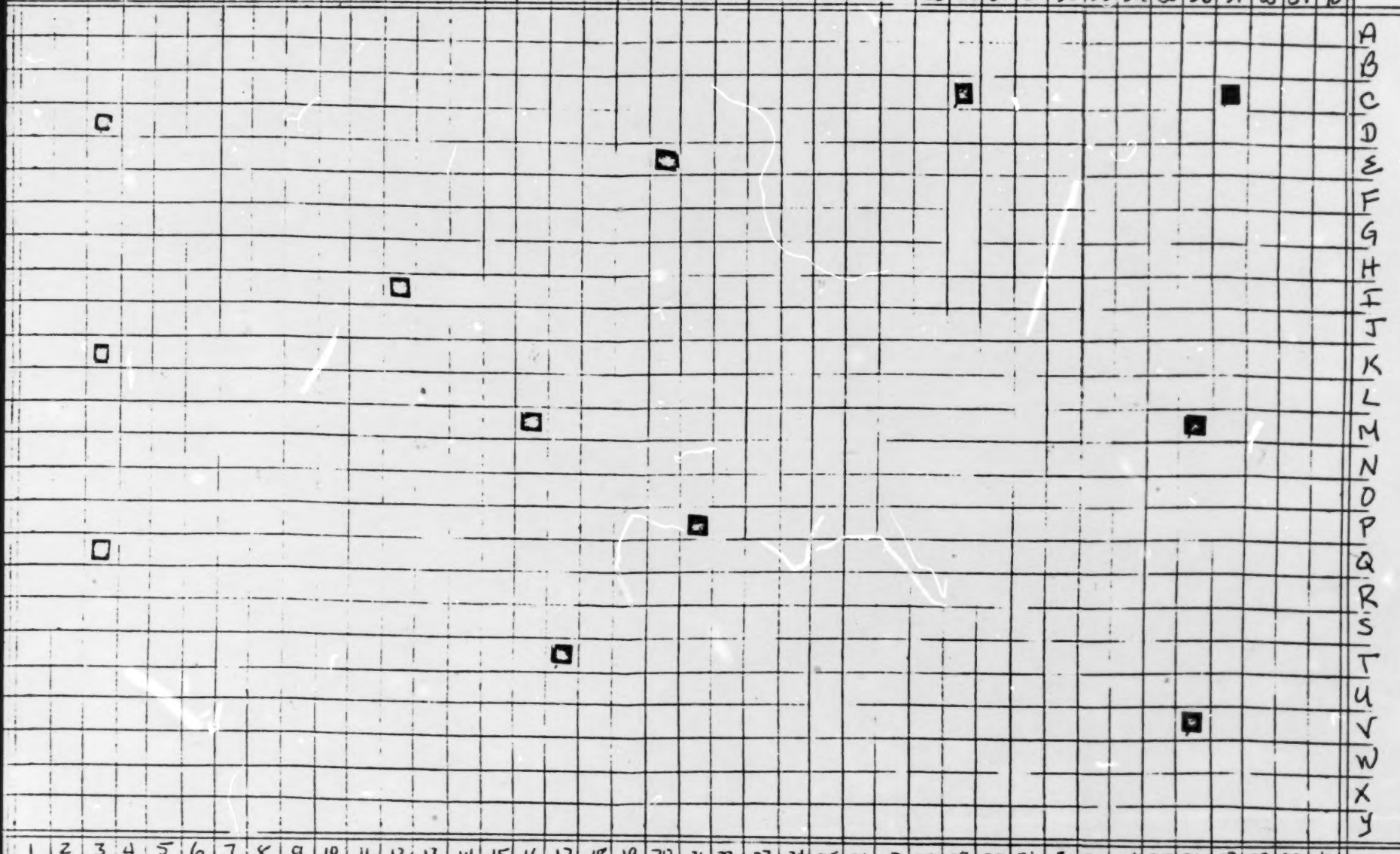
ALCOHOLISM



DRUG ABUSE


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
A B C D E F G H I J K L M N O P Q R S T U V W X Y
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

TREATMENT CENTERS



Limitations

The number of documents that can be indexed is determined by the number of spaces in the grid. The sample cards have space for 1000 documents. If that number were reached, the file could be expanded by making up a complete new set of subject heading cards with numbers from 41 to 80. The two sets would have to be searched separately each time.

Systems available commercially can accomodate up to 10,000 or more items on each card, since the grid is much finer; however, a commercial system runs from $1500 to $2000.

Advantages

1. Search time is very rapid.
2. A handmade system is inexpensive.
3. There is no limit to the number of terms under which a document may be indexed.
4. New terms can be added easily be making up a new card. For example, authors' names or geographical locations can be easily added.
5. An optical coincidence system can be easily converted to computer.
6. The input and retrieval systems are simple and can be easily taught.

Disadvantages

1. A handmade system cannot accommodate a very large collection on one set of cards.
2. Documents are not filed by subject, which some people find inconvenient.
3. To remove an item from the collection, one must fill in the hole on every card which has been punched. Another way of deleting documents is described below under Variations, but if there is frequent change the file must be redone.

4. False combinations may be generated, just as in uniterm. For example, a combination of "poetry" and "children" will indicate items on both poetry about children and poetry for children.

Variations

Bourne in Methods of Information Handling mentions the possibility of using keypunch cards for a small peek-a-boo system. (Bourne, page 114) The cards can be machine punched or hand punched. The sample cards (Set 4, page 18) will accommodate up to 800 items.

Jahoda describes a way to indicate the most important documents in a collection. Besides the regular card on a subject, an identical card on a different color of paper can be drawn up. On this colored card, punch holes for only those documents most directly related to the subject. When searching, put this card behind the others. Those documents indicated by holes where the color shows through are only marginally relevant; where the holes on all cards coincide and the regular background shows through, the document is highly relevant.

Color coding may also be used to indicate documents which have been deleted. Mark one colored card "deleted" and punch holes for those documents which have been pulled from the collection. Place this card at the back when searching. The colored holes are still in the file. The blue card in the sample cards (Set 3, page 15) indicates that documents 37/C, 34/N, and 34/S have been deleted.

A "but-not" search can be conducted on peek-a-boo cards. For example, if information is wanted on drug abuse treatment centers only, first compare the drug abuse and treatment center cards. Then add the alcoholism card at

Set 4

DRUG ABUSE

C | STATEMENT NUMBER | FORTRAN STATEMENT | IDENTIFICATION

ALCOHOLISM

C | STATEMENT NUMBER | FORTRAN STATEMENT | IDENTIFICATION

TREATMENT CENTERS

C | STATEMENT NUMBER | FORTRAN STATEMENT | IDENTIFICATION

the back. Those holes through which the background can still be seen indicate documents which also include information on alcoholism and should be disregarded.

EDGE-NOTCHED CARDS, or KEYSORT

In a keysort system, one card is made up for each item in the collection. All the important information about the item is written on the card and the cards are indexed by means of notches around the edge of the card.

Most keysort systems are set up with cards that are available commercially. These are manufactured by the McBee Corporation, a division of Litton Industries. Our sample cards were made by removing the wire from a book of spiral-bound index cards and reinforcing the perforation with masking tape. The cards were notched with scissors and the sorter is a #1 knitting needle.

Input

When an item is added to the collection, a card is typed with all the important information about that item. A code must have already been set up in which each subject heading is represented by one of the holes in the card. The terms under which the item is to be indexed are decided upon and noted. The holes which represent each term are notched.

The keysort card is added to the file. The keysort cards do not have to be kept in any order unless you want them in alphabetical order for your own particular purposes.

The items in the collection can be filed by accession number or any of the other methods discussed in the chapter on filing. Whatever method is used, the number or letters which identify the item must be noted on the keysort card.

Retrieval

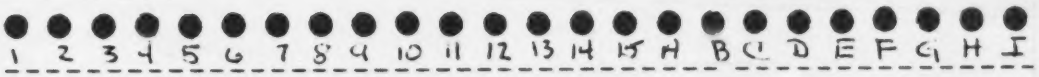
When the keysort cards are to be searched, first consult the card on which the code has been typed for the terms under which to search and the numbers of the holes which represent those terms. Leaving the code card on top of the deck, run the needle through the appropriate hole. For example, in the sample cards (Set 5, pages 22-25) run the needle through the second hole to retrieve information on health and safety. Hold the deck loosely and fan the cards out so the cards will be able to separate easily. When you lift the needle, the cards for which the second hole has been notched will fall from the deck. These indicate documents concerned with health and safety.

In order to narrow your search further, replace the code card at the front of this smaller deck and repeat the process with another descriptor; for example, if you want information on laws concerning health and safety, first sort for health and safety and then run the needle through the 4th hole and sort. In our sample cards one card (card #4) will fall.

Limitations

Jahoda suggests that the keysort system can easily accomodate only up to 5000 items. (Jahoda, page 73) For most collections, however, the limitations of keysort are mainly apparent in the size and form of the cards, the number of holes in the card, and the code which is developed.

While index cards do come in several sizes and could be run through a mimeo machine if a printed form is needed on the card, anyone who needs a highly specialized card should contact the McBee Corporation (the only company manufacturing the cards at this time). The company can design cards with special formats in many sizes. The company representative will be able to help you decide what information will be needed on the card and will show you how to use the system.



CODE:

1 = Migrant Camps
2 = Health & Safety
3 = Education
4 = Laws
5 = Social Services
6 = Organizing
7 = Wages
8 = Growers
9 = Food Processors
10 = Print
11 = Non-Print
12 = Spanish

A = Tomato
B = Pickle
C = Sugar Beets
D = Other crops

(ENC I, card 1)

[Bibliographic Notation]

A book on the tomato processing industry.

(9), (10), (A)

(ENC I, card 2)

[Bibliographic Notation]

A pamphlet about the wages growers are legally required to pay, in Spanish.

(4), (7), (8), (10), (12)

(ENC I, card 3)

[Bibliographic Notation]

A brochure in Spanish on applying Occupational Health and Safety Regulations to migrant camps.

(1), (2), (4), (10), (12)

(ENC I, card 4)

[Bibliographic Notation]

A pamphlet on how to organize workers in a migrant camp.

(1), (6), (10)

(ENC I, card 5)

[Bibliographic Notation]

A film in Spanish on Social Services available to migrant workers in Ohio.

(5), (11), (12)

(ENC I, card 6)

[Bibliographic Notation]

A film about the education of children of migrant workers.

(3), (11)

(ENC I, card 7)

[Bibliographic Notation]

A slide/tape presentation about the responsibility of management toward the safety of workers in a pickle factory.

(2), (9), (11), (B)

(ENC I, card 8)

The holes in the manufactured cards usually run all around the border and may run up to four deep. Index cards cannot have this many holes, but this limitation can be partly overcome by the design of the code. Some different methods of coding are discussed under the Variations section and are illustrated in sample sets 6 and 7.

Advantages

1. The index cards used in these samples are very inexpensive. Regular keysort cards which can be purchased are also fairly inexpensive, running about $28 for 500 cards. The purchased cards are designed to separate more easily and hold up better under heavy use.
2. Each card contains a good deal of information about the item, and, in the case of many record keeping systems (for example, personnel records) may in fact be the item.
3. The system can be kept very simple and easily taught; however, it can become complicated enough to take care of highly specialized needs.
4. To delete an item you simply pull the card.
5. The keysort cards themselves do not have to be kept in any order unless you have a special reason for doing so.
6. Retrieval is rapid.

Disadvantages

1. Once the code is set up, it is difficult to add new descriptors.
2. The code must be carefully set up take full advantage of the number of holes available.
3. Keysort does not easily lend itself to alphabetical sorting, though there are methods for this. (See attachment 1, page 28.)

4. Sorting techniques for a complicated code may be difficult to teach and learn.

Variations

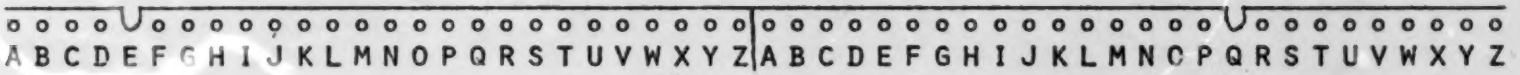
Many complicated techniques for coding are fully described in a number of books, including Bourne and Casey. Attachments 1 through 3 give an indication of how to code names, dates, and numbers. We recommend that you consult these books or a McBee Company representative if you will be needing this complicated a system.

The sample cards in Set 6 indicate one way to code more than one set of descriptors into the same set of holes. In these cards (pages 31-34) the hole labelled "E" can either represent "book" or "film". In this system, you should first sort for print or non-print (holes 10 and 11), then the form (holes E-I).

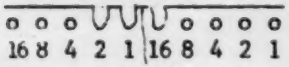
The sample cards in Set 7 (pages 35 and 36) use color coding to indicate the form the item takes. This method saves several holes which can then be used for other descriptors. Colored index cards could be used in this way also.

Cards other than index cards can be transformed into keysort cards using a template and hand punch or a drill press. It is also possible to keysort not only paper but also photographs, film transparencies and microfiche. Again, if you require a highly specialized system or have unusual needs, it is best to consult the books recommended in the bibliography or consult the manufacturer of the cards before plunging in.

(a) Single-row direct coding for letters E,Q

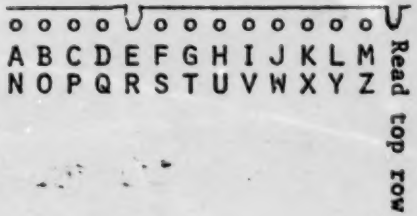


(b) Single-row numeric representation for letters C, P



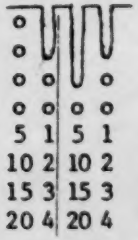
C = 3
P = 16

(c) Single-row with single modifier for letter E



(d) Single-row triangular coding for letter H

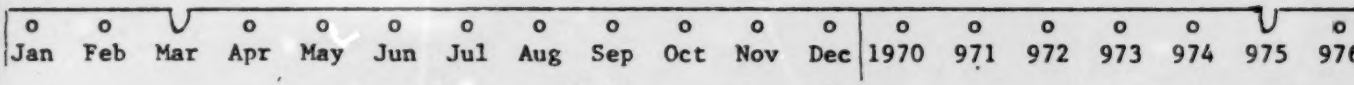
(e) Four-row numeric coding for letters B, Q



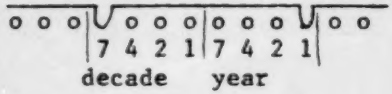
B = 2
Q = 17 (15+2)

Attachment 1: Some methods for direct coding of alphabetic data

(a) Single-row direct coding for March, 1975

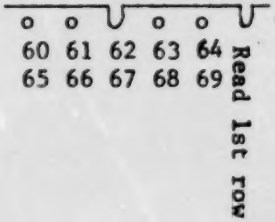


(b) Single-row 7-4-2-1 coding for 1971

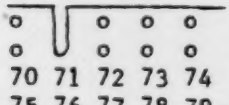


(1900 is assumed)

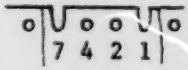
(c) Single-row single modifier for 1962



(d) Double-row direct one-to-one coding for 1976

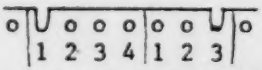


(e) Single-row 7-4-2-1 coding for May



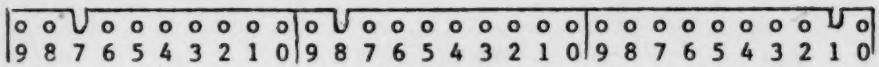
May = 5

(f) Months by quarters for March

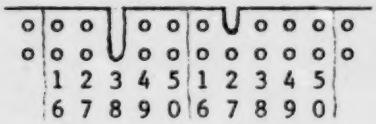


Attachment 2: Some methods for coding dates

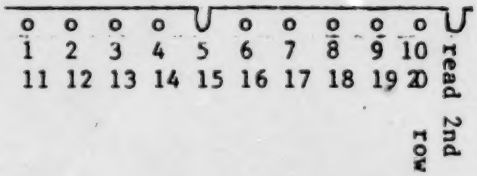
(a) Single-row direct one-for-one coding for 781



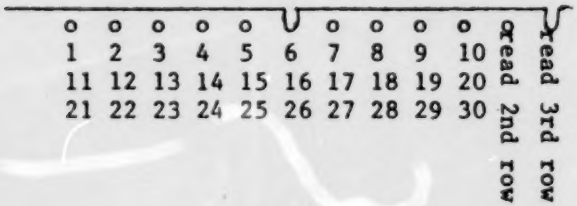
(b) Double-row direct one-for-one coding for 82



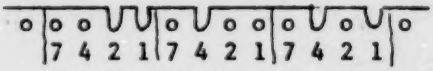
(c) Single-row single-modifier for 15



(d) Single-row double-modifier for 26



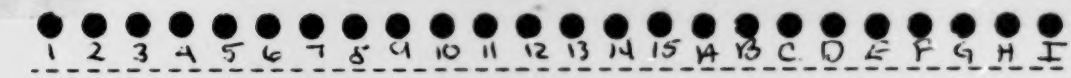
(e) Single-row 7-4-2-1 coding for 345



3 = 2+1
4 = 4
5 = 4+1

(f) Single-row triangular coding for 637

Attachment 3: Some methods for direct coding of numeric data



A more complicated code:

1 = Migrant Camps
2 = Health & Safety
3 = Education
4 = Laws
5 = Social Services
6 = Organizing
7 = Wages
8 = Growers
- A = Tomato
- B = Pickles
- C = Sugar Beets
- D = Other

9 = Food Processors
- A = Tomato
- B = Pickle
- C = Sugar Beets
- D = Other

10 = Print
- E = Book
- F = Pamphlet
- G = Article
- H = Other

11 = Non-Print
- E = Film
- F = Slide/Tape
- G = Recording
- H = Picture
- I = Other

12 = Spanish

(ENC II, card 1)

An article about wages in the pickle industry.

(7), (8), (9), (B), (10), (G)

(ENC II, card 2)

A book about the citrus fruit industry.

(9), (D), (10), (E)

(ENC II, card 3)

A pamphlet about OSHA regulations covering agricultural workers in the field.

(2), (4), (10), (F)

(ENC II, card 4)

A film in Spanish about laws concerning the education of migrant children.

(3), (4), (11), (E), (12)

(ENC II, card 5)

A film about the history of organizing migrant workers.

(6), (11), (E)

(ENC II, card 6)

A recording of songs used in organizing migrant camps -- in Spanish.

(1), (6), (11), (G), (12)

(ENC II, card 7)

A picture of an OSHA violation in a migrant camp.

(1), (2), (11), (H)

(ENC II, card 8)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 A B C D E F G H I

Code, also using color coding:

1 = Migrant Camp
2 = Health & Safety
3 = Education
4 = Laws
5 = Social Services
6 = Organizing
7 = Wages
8 = Growers
9 = Food Processors
10 = Spanish

A = Tomatoes
B = Pickles
C = Sugar Beets
D = Other

(ENC III, card 1)

green edge

A kit concerning OSHA regulations pertaing to migrant camps.

(1), (2), (4)

42

(ENC III, card 4)

Blue Edge

A book on the education of migrant workers.

(3) -

(ENC III, card 3)

Red Edge

An article on the sugar processing industry

(a), (c)

(ENC III, card 2)

FILING

Previous sections of this paper have detailed ways you can index materials in order to gain quick and efficient access to them. However, these systems do not detail ways in which the materials themselves can be organized, stored, and retrieved after being indexed. This is the purpose of the various filing systems which are used in some way by most businesses, agencies, and other organizations, both large and small.

Recommended Use

Filing systems are most appropriate for loose sheets of paper, small pamphlets or brochures, unbound papers, etc. They are not good for large, bulky items such as books and non-print materials.

Equipment

In order to set up a basic filing system you need:

--a filing cabinet(s) which can range from 1 to a number of drawers;

--file guides which separate the file drawer into distinct sections and support the records, preventing them from bowing or sagging;

--file folders which contain the material, especially if the material is in loose-leaf form;

--file folder labels which mark the file guides and individual file folders and can be purchased at any office supply store;

--and, in some instances, a card file or some other kind of index in order to gain access to the materials in the file.

Filing Systems

There are four basic filing systems--alphabetic, numeric, geographic and subject:

Alphabetic--In this system the file drawer is divided into sections according to letter or subdivisions of a letter. If there is not much material, a simple division can be made by labelling each file guide with one letter. The file folders, with the contents identified on the tab, are filed in alphabetical order behind the appropriate letter. In a larger system file guides may be labelled with 2 or 3 letter combinations, thus dividing the contents of the file drawer so folders can be found more easily. Individual file folders are usually filed by name in this system and are frequently used to hold correspondence. This system can also be used effectively for a pamphlet file in which the pamphlets are indexed by subject but are stored by author or title for easier retrieval.

Numeric--The numeric system enables quick access by use of a code number which is assigned to each item. The items are arranged in numeric order and divided by file guides periodically to enable quick retrieval. Since the code number is assigned, this is an indirect system and another file, usually a card file, is needed to gain access to the right folder or item. The numeric system can easily be used with the uniterm or optical coincidence indexing systems in which the incoming documents are assigned an accession number.

Geographic--This system is very useful if you need to retrieve material for a certain area. For example, you may have a collection of material on mental health services in Ohio, but for your purposes it is important to know quickly what services are located in a particular county. The files are arranged alphabetically first by location, then by name or subject, depending on the material and the purpose of the file.

Subject--Subject filing is most useful when you wish to retrieve information on a general area but not necessarily a particular item. Subject files are widely used in libraries and information and referral centers. They are also frequently used for pamphlet or newspaper clipping files.

In order to file the material, you will first have to make a list of subject headings based on the material you already have and what you expect to receive. Many articles, books and thesauri are available in your library to help you make up subject headings for particular collections. Check with the reference librarian to find these subject heading guides--both Library Literature and ERIC Resources in Education may prove especially useful. Label the file guides with the main subject headings and the file folders with subdivisions of a main subject.

For easy access to the files it is helpful to have on hand the list of subject headings showing what items or information are included under each descriptor. This file should be cross-referenced to related subjects and should indicate what the preferred heading is in a questionable situation (for example, "Aged," "Senior citizens," or "Elderly"). You may also need an author/title file which will refer the user to the subject heading under which the material is filed.

Advantages

1. There are a variety of ways to organize and file material given the basic equipment, which is generally available in most offices.
2. Filing is a familiar means of organizing material and therefore users can quickly learn how the system works.
3. The system is expandable so long as file drawers and space are available.

4. New subdivisions (authors, areas, etc.) can be added as the collection grows.
5. The files can be readily accessible for people to use or they can be locked so that access is gained only through an authorized person.

Disadvantages

1. If not already present, file cabinets are expensive to buy.
2. Space for file cabinets may be limited.
3. Not all materials can be easily filed.
4. An item may be lost if not adequately indexed or if filed in the wrong place.
5. Filing systems do not automate easily.
6. In a subject file, new subject headings must strictly conform with the existing headings and the thesaurus must be strictly followed or material will be lost in the confusion.

Variations

Rotary file--This is a small circular file which is handy for desk-top use, especially for listing names, addresses and phone numbers. It is good for quick reference, although the space limits the amount of information that can be given on the card.

Looseleaf notebook--This can be used to organize information of a small collection which does not change often. The notebook can be divided into subject areas with an index at the front listing the subject headings and the material included under each subject. The main disadvantage is that a whole page must be redone if there are substantial changes in the information.

Color-coding--Colored tabs and colored folders can be used in filing systems in order to differentiate one kind of material from another. Colored tabs can also be used on folders to show when a folder or subject area should be updated or weeded.

Many books or recent periodicals can be consulted for information on filing and filing equipment. Salespersons will also be glad to demonstrate their line of equipment and offer suggestions on what will be most useful for your needs. Companies that manufacture filing equipment can be located in your area by looking in the Yellow Pages under "Filing equipment, systems, and supplies."

BIBLIOGRAPHY

The following sources and subject headings were used to compile the bibliography. Although there are not many items in the bibliography, those listed give detailed information and are very helpful.

Sources that were most helpful in writing this paper were ERIC, Business Periodicals Index, and the card catalog at the library. Subject headings that were most useful in ERIC were Filing, and Information Storage. In addition to articles on organization systems, there terms also included many articles on different classification systems which would be useful to anyone developing a list of subject headings.

In older editions of the Business Periodicals Index the heading "Information Storage and Retrieval" was helpful; however, after 1960 this phrase was used for automated and computer systems and the heading "Files and Filing" led to articles on manual systems. Subject headings that were useful in the card catalog were "Files and Filing" (books located under HF/5736 for Library of Congress classification and 651.5 for Dewey) and "Information Retrieval" (Z/695-699 and 010.78).

Filing Systems

Fahringer, Peggy Louise. A Classification of Knowledge for the Arrangement of a Library School Pamphlet File with a Manual of Instruction for Maintenance and Use of the Collection. ERIC Doc. # 060 901. Sept. 1958. 35 pages.

Short article on a classification system which was set up for pamphlets. Includes directions on how to set up system, process pamphlets, assign subject headings, and use the file.

Kahn, Gilbert; Yerian, Theodore; and Stewart, Jeffrey R. Progressive Filing and Records Management. New York: Gregg Publishing Division. 1962.

A most helpful book with good illustrations and easy-to-understand text. Deals almost exclusively with manual filing systems with an orientation toward business. Dewey no. 651.5/K122p.

Trivedi, Harish. A1 Alternative System of Subject Classification for Media Libraries. ERIC Doc. # 107 275. June 1974. 14 pages.

Author proposes a system of subject classification for newspaper clipping files and explains the filing system used.

Card Systems

Bourne, Charles P. Methods of Information Handling. Information Sciences Series. NY: John Wiley & Sons. 1963. 241 pages. Dewey no. 010.78 B667me.

Casey, Robert. Punched Cards: Their Applications to Science and Industry. NY: Reinhold Publishing Co. 1958. 697 pages. LC no. Z 695.92 .C3.

Doudnikoff, Basil. Information Retrieval. Auerback Publishers, Inc. 1973. 113 pages. LC no. Z 699.D66.

Jahoda, Gerald. Information Storage and Retrieval Systems for Individual Researchers. Information Sciences Series. NY: Wiley-Interscience. 1970. 135 pages. LC no. Z 695.9 J35.

The above books were the most useful in writing this paper. They contain detailed information on uniterm, optical coincidence, and edge-notched card systems. The books listed below were also consulted:

Becker, Joseph, and Robert M. Hayes. Information Storage and Retrieval: Tools, Elements, Theories. NY: John Wiley & Sons, Inc. 1963. 448 pages. Dewey no. 010.78 B388in.

Kochen, Manfred. Principles of Information Retrieval. Information Sciences Series. Los Angeles: Melville Publishing Co. 203 pages. LC no. Z 699.K583.

Metcalfe, John. Information Retrieval, British and American, 1876-1976. Metuchen, NJ: Scarecrow. 1976. 243 pages. LC no. Z693.A2 M47.

Sharp, Harold S. Readings in Information Retrieval. Metuchen, NJ: Scarecrow. 1964. 759 pages. LC no. Z 699.S47.

Section IV--Hand Operated Deep Indexing Systems

Vickery, B. C. On Retrieval System Theory. London: Butterworths. 1961. 159 pages. Dewey no. 010.78 V663on.

Vickery, B. C. Techniques of Information Retrieval. Hamden, Connecticut: Archon Books. 1970. 262 pages. LC no. Z 693.V53.

The following articles and ERIC documents also proved useful:

ED 108 661. Installation Manual for the Uniterm System of Coordinate Indexing. Documentation, Inc. Washington, DC. Dept. of Defense. Oct. 1953. 31 pages.

Complete explanation of how uniterm works and how to process and index documents.

ED 046 443. Non-Conventional File Structure Data Collecting Projects in the Smithsonian Institute.

Survey of 49 projects in the Smithsonian with filing systems ranging from computer systems to being filed away in the head of the collector. Keysort, optical coincidence and uniterm have been used to organize skeletons, butterflies, dental records, and other strange collections. An inspirational document for the true organizer.

Norton, John. "Setting Up a Personal Information Retrieval System," Management Review. 59:2-9, March, 1970.

Business applications for manual retrieval systems.

Paul, Suzanna. "Establishing a Manual Retrieval System for a Small Library," Special Libraries. July 1976, pages 311-315.